• COLORADO RIVER •

AQUEDUCT NEWS

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Vol. VIII JUNE 30, 1941 No. 6

Front view of central section of the Softening and Filtration Plant. The palm tree which frames the view is one of the trees and shrubs recently planted in landscaping the grounds.

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AQUEDUCT NEWS
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

306 West Third St.
Los Angeles, California

Published monthly in the interest of Field and Office Workers on the Colorado River Aqueduct, and for the information of all other citizens of the Metropolitan Water District.

Vol. VIII June 30, 1941 No. 6

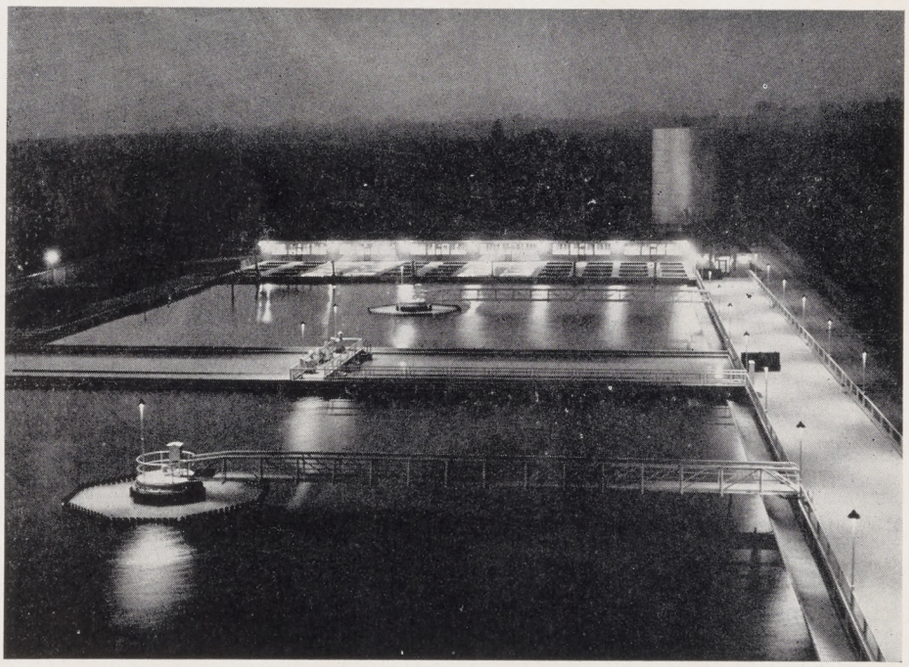
Preparing City Mains For Soft Water

With the view of making available the full benefits of the soft and filtered water to the water users in cities now taking or preparing to take the aqueduct supply, District engineers under the supervision of Distribution Engineer R. B. Diemer are cooperating in every way possible with the municipal water officials.

Where the local water is hard or is not filtered, it has a tendency to deposit mineral or organic substances on the inner walls of the distribution pipe lines. The soft and filtered water from the aqueduct does not contain the foreign substances which cause such deposits, and in fact has the effect of cleaning out the deposits. When these deposits are thus washed away they may, for a few days, give the water a murky appearance, or even a disagreeable odor. A thorough flushing of the city mains with the soft and filtered aqueduct water will dispose of most or possibly all of the accumulated deposits before they reach the consumer, it has been pointed out.

In some instances, it is further explained, the municipal water authorities may choose to mix the aqueduct water with local water. Such a mixture may not in all cases be entirely satisfactory because of certain chemical reactions that may occur. When the District engineers are advised of such mixtures they take immediate steps to assist in preventing undesirable reactions.

When the aqueduct water leaves the Softening and Filtration Plant it is softened to a degree of about 85 parts per million, and this degree of softness is to be maintained. The water also is filtered crystal clear. It is odorless, contains no chlorinous taste, and is free of all substances which cause deposits in distribution mains, house plumbing and hot water heaters. Furthermore, the aqueduct distribution lines are thoroughly flushed and cleaned before water is delivered to the District cities.



Night view of the settling and filtration basins which form the north wing of the Softening and Filtration Plant.

First Colorado River Water Flows Into Pasadena Reservoir on June 17

On Tuesday, June 17, the first Colorado River Aqueduct water to come to any District city flowed into the Sunset reservoir in Pasadena.

The soft and filtered aqueduct water arrived at the Pasadena reservoir a day ahead of schedule. It had been planned to begin the delivery of the new water supply on June 18. By June 17, the District engineers had completed the flushing of the distribution line between the Softening and Filtration Plant and Pasadena, and the officials of the Pasadena Water Department, as well as the District, decided there was no need to hold up a good thing any longer than necessary.

Arrival of the first aqueduct water was not marked by any formal celebra-

(*Continued on next page*)

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Transmission....Robt. N. Allen
Maintenance.....W. J. Neale
Field. Supt. Pumping.....T. T. Walsh

Aqueduct Contracts
Morris Dam Connection
C. M. Elliott and Stroud-Seabrook
M. W. Hongola, Supt.
Distribution System
Softening and Filtration Plant
Griffith Company. Weymouth Crowell Co., Project Manager, Olen Evans, Field Supt.
Waste Water Disposal Line
United Concrete Pipe Corporation
Schedule 29P
American Concrete & Steel Pipe Co.
Schedule 30SC
J. F. Shea Co., Inc.
Hollywood Tunnel
J. F. Shea Co., Inc.
Schedule 31P
United Concrete Pipe Corp.
Schedules 32CI, 33CI
Artukovich Bros.
Schedules 34P, 35P, 36P
American Concrete & Steel Pipe Co.
Schedule 37SC
Macco Construction Co.
Schedules 38SC, 39A
Werner & Webb
Schedule 40A
Warren Southwest, Inc.
Schedule 41P
American Concrete & Steel Pipe Co.
Orange County Reservoir
C. G. Willis & Sons, Inc., and Charles G. Willis.

THE WATER IS COMING

(1) Placing the last section of pipe in the Burbank to Santa Monica feeder a few days before the arrival of the first flow of softened and filtered water from the Colorado River. (2) Here at the outlet tower in Lake Mathews, the aqueduct water poured into the 150-mile distribution system. After passing through the Softening and Filtration Plant, 35 miles to the north, it was sent on its way to six of the District cities. (3) First Colorado River water to be delivered to any District city gushes out of a series of inlet pipes and into the Sunset reservoir in Pasadena as Pasadena city officials line up to witness the historic event. (4) Distribution Engineer R. B. Diemer for the District (left) hands Water Superintendent Morris Jones of Pasadena his first drink of soft and filtered aqueduct water.

First Water

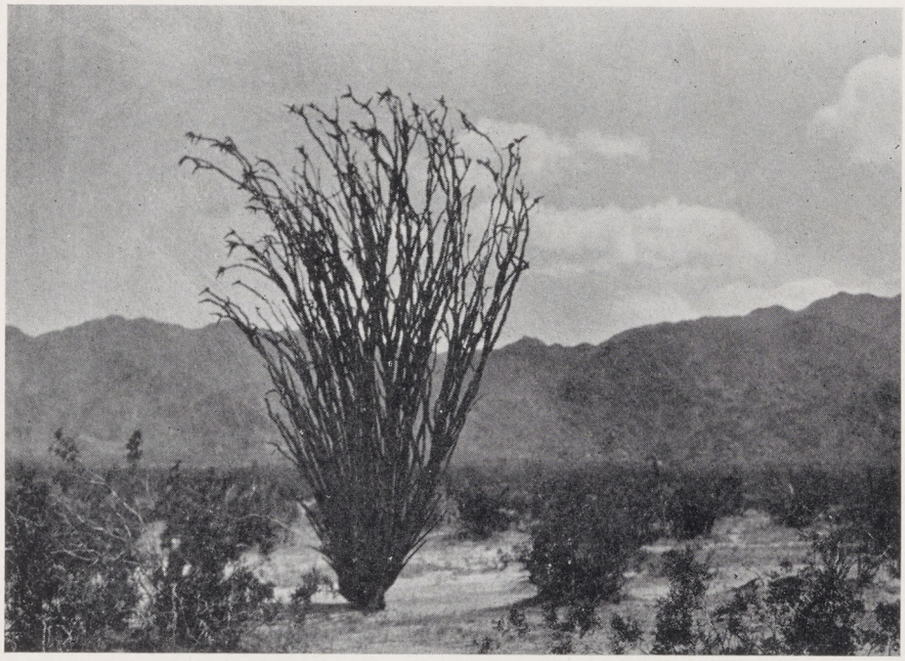
(*Continued from Page 2*)

tion or ceremony. There were no fuss and feathers, no brass bands, no oratory. To be sure, the arrival of this first water marked the consummation of the greatest domestic water supply project in America. It was a fact that the sparkling, crystal clear water which flowed into the Pasadena reservoir had traveled more than 300 miles across deserts and under mountains in a giant man-made river upon which engineers and an army of workmen had labored for more than eight years. But to the men on the aqueduct job, it was just a part of the day's work—this turning of a valve which brought the first Colorado River water to the homes of one of the cities of The Metropolitan Water District of Southern California.

Present to witness the historic event were several representatives of the City of Pasadena and the District. Present also were reporters and camera men from the Los Angeles metropolitan newspapers and Pasadena. Included in the Pasadena group were Franklin Thomas, Vice Chairman of the District Board of Directors and Pasadena's representative on the Board; Chairman A. I. Stewart and Director M. S. Brenner of the Board of Directors; City Manager C. W. Koiner and Water Superintendent Morris S. Jones. Representing the District was Distribution Engineer Diemer.

On June 18 aqueduct water was turned into the municipal water systems of Burbank, Beverly Hills, Santa Monica, Compton and Torrance. A few days later a small flow of the new water supply was taken by the City of Los Angeles at its Ascot reservoir. At the close of the month the last links in the Orange County feeder were being completed, and aqueduct water was scheduled to be available to Anaheim, Fullerton and Santa Ana by or before the middle of July.

Soft and filtered water from the aqueduct is now available to all of the District cities which have provided a physical connection with the aqueduct distribution system. Water is delivered to these cities upon the request of the local water authorities. After the water flows into the municipal water system it is handled by the city authorities.



Across 200 miles of desert and mountain country, of which this view is typical, the army of aqueduct builders has constructed and made ready for operation the country's largest domestic water supply line.

Aqueduct Project Reviewed As New Water Supply Comes to M. W. D. Cities

After more than eight years of uninterrupted construction work over a three-hundred-mile front and with 38,000 men on the job from first to last, the giant Colorado River Aqueduct of The Metropolitan Water District of Southern California has started the delivery of water.

As this new water supply is diverted from the distant Colorado River, flows across wide desert and mountain spaces, and finally down into the favored cities on the Coastal Plain of Southern California, it brings with it a message of everlasting security against drought. It brings with it the message that a great people, with vision, courage and an indomitable will, have been rewarded, at last, with the golden fruits of their labor.

The soft and filtered Colorado River water that is now gushing from the taps of homes in a number of the District cities is the product of long years of struggle, toil and planning. It crowns with success the efforts of those who battled in the legislative halls of the state and nation to secure essential legislation to set the huge aqueduct project in motion. It crowns with success the labors of the engineers who surveyed and mapped 25,000 square miles of trackless desert country searching out the best and most economical route for the world's largest water supply line. It is the greatest reward of all for those whose engineering plans overcame the countless physical obstacles that stood in the pathway of the aqueduct, and those who worked under a merciless desert sun to build the giant waterway.

The basic reason for the building of the Colorado River Aqueduct, of course, is that Southern California is by nature a semi-arid, desert country. During the past winter season this section of the country received in many spots well over 30 inches of rainfall, but on the average this territory can expect to have not more than about 15 inches of rain a year. There have been many years in the past fifty in which only a trace of rain came to this region during an entire year.

The visitor seeing the highly developed communities and citrus groves on the Coastal Plain of Southern California cannot readily believe that such a region is naturally a desert land. All about him he sees beautiful homes, with luxuriant gardens and lawns and with every evidence of great quantities of water in use. And of course everyone knows that every standard movie home in Beverly Hills and Hollywood is equipped with a swimming pool—and swimming pools require water.

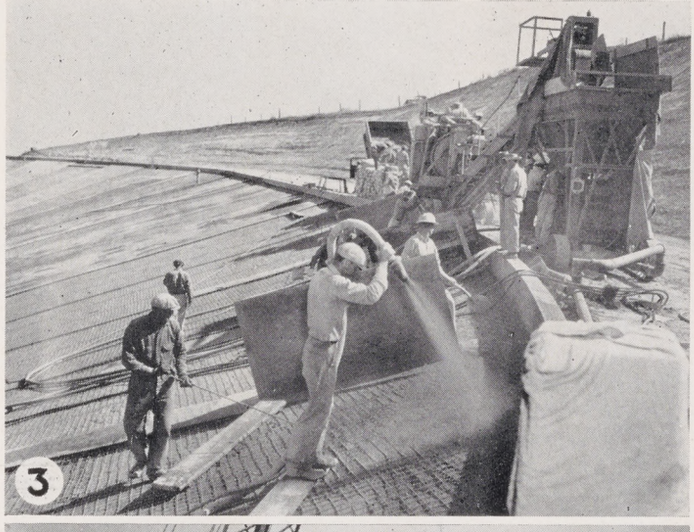
The truth is that these Southern California cities and citrus growing areas do use a great deal of water. It has been the generous use of water that has made possible the remarkable development of this region. The water which, during the past forty years, has transformed this section of the United States into a great metropolitan area comes principally from the underground reserves which had been slowly accumulating over the hundreds of years that preceded the coming of the energetic Yankee.

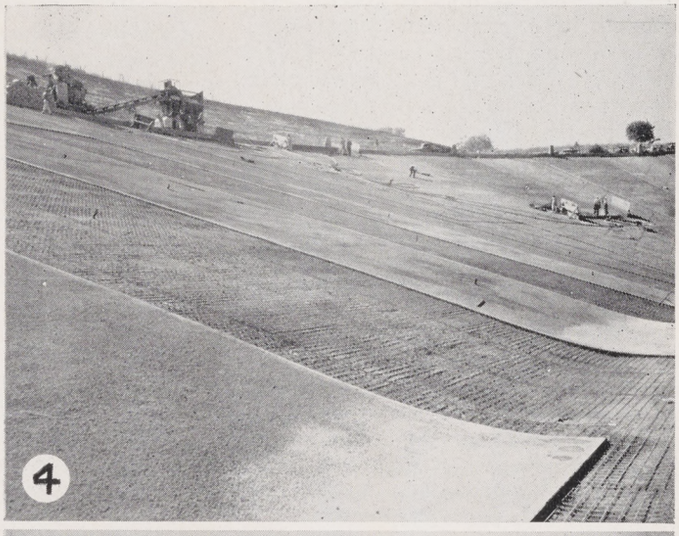
For the past twenty years, or more, the water users have been taking out of these basins far more water than is being returned. The consequence has been a depletion of these reserves. During average rainfall years, the Southern California Coastal Plain has been taking out of the ground about 200,000,000 gallons of water a day more than has been replaced. The result has been a constant lowering of the water levels, and in a number of places near the coast these levels have been drawn down far below sea level, and the basins have been forever destroyed by salt water.

First surveys on the Colorado River Aqueduct were set under way by the City of Los Angeles in 1923.

As these studies progressed, it became more and more evident that the need for Colorado River water was not confined to Los Angeles. In fact, it was quite clear that many other communities needed the additional water more acutely than Los Angeles. How these separate and noncontiguous cities could join in a common venture to finance and build a water supply system for their mutual benefit was the problem that confronted the residents of the region. The problem was solved by W. B. Mathews, at that time the Special Counsel for the Los Angeles Department of Water and Power, and later General Counsel for the District, and James H. Howard, then the City Attorney of Pasadena and now the District's General Counsel. They conceived and developed the plan of establishing a new type of political subdivision of the State, a governmental unit that would enable separate incorporated cities and other types of areas to organize a water district through which they could finance, build and operate a water supply system, and yet retain their full corporate independence in all other respects. Necessary legislation authorizing such a political subdivision of the State of California was adopted by the State Legislature in 1927. In 1928 there was organized The Metropolitan Water District of Southern California. Originally there were eleven cities in the District.

(*Continued on Page* 8)





ORANGE COUNTY RESERVOIR

(1) This is how the reservoir appeared as the fine grading on the slopes was being completed and the placing of the curb on the basin's berm was in progress. (2) Close-up view of fine grading on the reservoir embankment prior to the placing of gunite lining. (3) Gunite machinery and crew applying a two-inch reinforced gunite lining on the sides and bottom of the reservoir. (4) The gunite lining is placed in alternate strips as shown in this photograph taken before the alternate spaces had been covered. (5) Lowering into place a section of the pipe line which leads into the reservoir from Brea Canyon to the north. (6) Here we see under construction the valve structure and the excavation work in progress for the pipe line leading out of the reservoir. The purpose of the Orange County reservoir is to regulate the flow of water being delivered from the Softening and Filtration Plant to the cities of Fullerton, Anaheim and Santa Ana.

MONTHLY REPORT REVIEWS ACTIVITIES ALONG THE AQUEDUCT LINE

(EDITOR'S NOTE: The following is a brief summary of some of the activities of the District as set forth in the monthly report of General Manager F. E. Weymouth, filed with the Board of Directors in June, covering work done in May.

Legal Division

A contract under the Boulder Canyon Project Adjustment Act of 1940, modifying the contract for electrical energy at Boulder Dam, was negotiated and executed. The Adjustment Act is now in effect.

Miscellaneous Activities Division

During the month of May, 1941, 107 labor employment applicants were cleared for work on the aqueduct. Of this number, 8 were made available for force account work and 99 were made available for aqueduct contractors. Identification certificates were issued to 66 applicants. The net turnover for all positions for April, 1941 was 3.13 per cent as compared with 1.68 per cent for the same month in 1940.

Main Aqueduct

Salvage Division—Stock appraised and transferred to the Banning salvage yard to date amounts to $2,371,428.38. Sales during May amounted to $25,-262.22. Total of salvage disbursements to date amounts to $1,588,537.40. The appraised value of stock on hand as of May 31, 1941, was $599,481.31.

Parker Dam and Power Plant—A total of 3675 cubic yards of concrete was placed by Bureau of Reclamation forces during the month. The floating steel bulkhead to be used for crest gate repairs was completed.

Electrical Engineering Division

Pumping Plants—The pumping plants were operated intermittently during the month for testing and conditioning aqueduct structures and plant equipment.

Construction—Foundations for the five emergency gas engine generator sets were completed at all plants. The third and fourth engine sets were received from the manufacturer and their installation started.

Civil Engineering Division

Design—Designs were completed for a steel cover for the open portions of the Puddingstone wasteway near San Dimas on the upper feeder.

Specifications—Three sets of specifications were issued during May, including specifications No. 355 for a cottage at Morris Dam, and No. 356 for telephone line, Lake Mathews to LaVerne.

Hydrography—Meetings of the Colorado River Board of California were attended for discussion of pending problems with Arizona. Storage in Lake Mathews on May 31 was 95,831 acre feet.

Distribution Division

Field and Office Engineering—In the field, lines and grades were set, construction work was inspected, and quantities were measured. In the office, shop drawings were checked and reinforcement steel lists were completed.

Contract Work—At the softening and filtration plant, Griffith Company completed all work under its contract. Work was resumed on construction of fences and gates, and resurfacing of highways and streets crossed by the waste water line was finished.

On the Santa Monica feeder, the contractor completed the Glendale-Burbank pipe line and the Hollywood tunnel. Pipe is being laid across the Los Angeles River on Schedule 31P, and all pipe laying was completed on Schedules 32CI and 33CI. On the Orange County feeder, the contractor has a little more than a mile of pipe to lay on Schedule 34P, and about a mile and a half of pipe to lay to complete Schedules 35P and 36P. Schedule 37SC has been completed except for resurfacing of streets. At the Orange County Reservoir the contractors have nearly finished excavation and compaction of embankment. At Palos Verdes, the contractors completed the chlorination meter structure, finished the cottage and chlorination station, and the connections for power and light service were installed.

Purchasing Division

The total expenditures covered by 316 purchase orders and one agreement issued by this division during the month of May, 1941, aggregated approximately $15,100.00. Carload forwardings totaled 46, of which 21 were cement.

Accounting and Costkeeping

The total cost of the work accomplished to May 31, 1941, was $192,-603,494.50.

Radio Program Tells Of District Work

On Sunday evening, June 15, a vast radio audience on the Pacific Coast heard a vivid, authentic and dramatic description of the final preparations being made by the Metropolitan Water District to begin the delivery of soft and filtered aqueduct water.

The half-hour program was given over the Pacific Coast network of the Columbia Broadcasting System, and was arranged and produced under the direction of Fox Case, Columbia's Public Relations Director on the west coast.

Starting in the K.N.X. studio at Columbia Square in Hollywood, the program carried the audience 300 miles across the Colorado River desert to the Intake Pumping Plant, then to Lake Mathews, and finally to the Softening and Filtration Plant where a number of officials of the District were witnessing the completion of final tests preliminary to the delivery of aqueduct water.

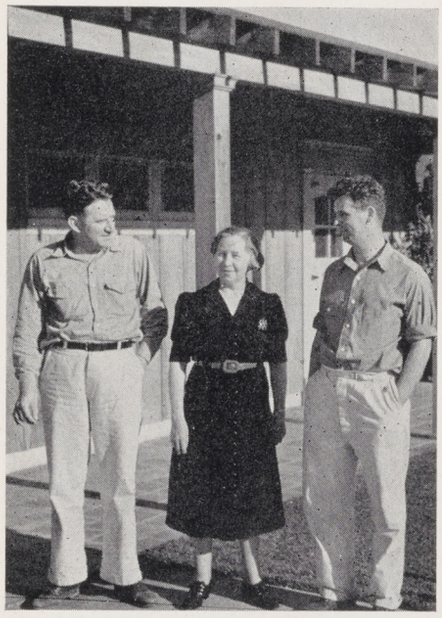
Five of Columbia's crack announcers told the colorful story of the planning and building of the Colorado River Aqueduct. These announcers, whose voices are familiar to every radio listener in the West, were Bob Garred, Dick Joy, Larry Chatterton, Bob Moon and Chet Huntley. Mr. Huntley was also in charge of the program's production in the field.

In the course of the broadcast brief and informative statements were made by Board Chairman W. P. Whitsett, General Manager F. E. Weymouth, Assistant Chief Engineer Julian Hinds, Chief Electrical Engineer James M. Gaylord, Distribution Engineer R. B. Diemer and Water Treatment Engineer W. W. Aultman.

The radio program was one of a series of aqueduct broadcasts that has been sponsored by the Special Events Department of the Columbia Broadcasting System during the past eight years. In the course of these programs, many of which have been released over a coast-to-coast network, accurate eye witness descriptions have been given the radio public of the big job of planning and building the world's largest domestic water supply line. The marked educational value of this radio service has been appreciated by officials of the District.

Indicative of the public's active interest in the aqueduct project are the many letters which come to the District's offices from all parts of the country after each of the radio broadcasts.

NEWS FROM FIELD AND OFFICE



Out at the Banning Testing Laboratory we find here (left to right) Rhodes E. Rule, Engineer engaged in hydrographic studies, Jessie E. Hoge, Stenographer, and Donald K. Woodin, Senior Inspector at Testing Lab.

Two more old-time aqueducters to leave the District's ranks this month are Orville F. Muret and Garland L. Gray, both of whom for the past several years have been employed in the Distribution Division. Muret started on the aqueduct job in October, 1929 working as draftsman in the old field survey office at Beaumont. Gray came with the District in November, 1934 and before joining the distribution forces was an Assistant Engineer on the San Jacinto Tunnel.

* * *

Gertrude Lois Johnson (Mrs. David MacClyment) marked the rounding out of ten years of service as telephone operator in the District's Los Angeles offices by resigning from her position on June 30. It is understood that she expects to devote her attention from here on out to the joys and responsibilities of housekeeping in her new home in San Marino.

* * *

Daniel A. Elliott, who as the District's architectural designer was the architect for the five aqueduct pumping plants, the softening and filtration plant, and many other notable District structures, is now engaged in private practice in the architectural field.

Aqueduct Temperatures
May 16, 1941, to June 15, 1941

	Max.	Min.
Gene Pumping Plant	108	61
Iron Mt. Pumping Plant	105	61
Eagle Mt. Pumping Plant	104	61
Banning	97	46
Lake Mathews	90	36

Sixteen of the women employees in the District's Los Angeles office were luncheon guests at the Arcadia home of Mrs. Martha Castle on Saturday, June 28. Mrs. Castle was in the District organization from 1931 to 1938, during which time she did secretarial work in the Miscellaneous Activities Division and for Chief Electrical Engineer Gaylord. Especially enthusiastic were the guests over the delicious luncheon fruits and vegetables which had been grown in the Castle gardens.

* * *

Another veteran aqueducter to answer the call of expanding defense work is Thomas F. (Robby) Robertson, who resigned his job as Station Chief at Hayfield and Eagle Mountain pumping plants late this month. Starting with the District in March, 1935, Robby had also been employed as general electrical foreman on the San Jacinto Tunnel and on pumping plant installation work. His new duties are in connection with naval construction work on Terminal Island.

A. L. Ledbetter, Caretaker at Eagle Mountain pumping plant camp, is caught by the photographer as he gives his magic touch to a flower border along a pumping plant wall.

Miss Dorothy Goddard

Known to thousands of former District employees and citizens who have called at the District offices during the past eight years, Miss Dorothy Goddard on June 25 resigned from her position in the Miscellaneous Activities Division to accept employment with the United States Government. She is now engaged in work in the Employment Tax Division of the Internal Revenue Office.

Miss Goddard first entered the service of the District in April, 1931 and was engaged in stenographic and secretarial work in connection with the educational campaign which preceded the 1931 aqueduct election. In 1933 she was placed in charge of the Information Office in the District's Los Angeles headquarters, and continued in charge of this office up to the time of her resignation.

* * *

Owen Wilson, a veteran in the District's service, this June completed his engineering course at the University of Southern California and received the degree of B.S.C.E. In doing so he won the enthusiastic congratulations of his fellow aqueduct workers for the accomplishment of successfully completing his engineering studies while at the same time ably carrying forward his regular work in the District's Design Division.

Aqueduct Review

(*Continued from Page* 4)

Today the District includes thirteen cities.

After its organization, the District took over from the City of Los Angeles all engineering work on the aqueduct. The District placed at the head of its engineering and administrative organization Frank E. Weymouth, with the title of General Manager and Chief Engineer. Mr. Weymouth for a number of years had been Chief Engineer of the United States Reclamation Bureau. All engineering and construction work on the Colorado River Aqueduct has been carried forward and completed under Mr. Weymouth's direction. With the big job completed in its initial development, Mr. Weymouth has announced his retirement as the active head of the District, effective August 1 of this year. He is to be succeeded by Julian Hinds, who for many years has been Assistant Chief Engineer of the District.

In September, 1931 the people of the thirteen cities comprising the District voted a bond issue of $220,000,000 to finance the construction of the aqueduct. There had been eight years of exhaustive engineering studies devoted to the project before the officials of the District submitted the undertaking to the people, recommended the route that was to be taken by the giant water line, and asked the approval of the largest bond issue ever before submitted for a popular vote by a governmental division of a state. The bonds were approved by the voters by a majority of five to one.

By late in December, 1932 all preliminary legal and financing work had been completed, and the task of actually building the aqueduct was set under way. From that time to June of this year the work has gone forward without interruption. On practically all of the work on the main line of the aqueduct, the work proceeded 24 hours a day in changing shifts.

In the construction of the aqueduct, the District employed both the contract and the force account methods. Forces employed directly by the District drove through the 33 miles of Coachella tunnels above Indio and completed the thirteen-mile San Jacinto tunnel, and in addition installed the pumping machinery in the five pumping plants and built several short siphon and conduit sections. All other aqueduct sections were constructed by contracting firms who were awarded the work on the basis of competitive bidding. All of the work, both contract and force account, was carried forward under the close supervision and constant inspection of District engineers and inspectors.

Interior view of the control room in the zeolite building which forms the south wing of the Softening and Filtration Plant.

Practically speaking, all of the construction work in the vast aqueduct system in its initial development now has been completed. In this connection it is important to note that the work contemplated under the 1931 bond issue has been accomplished at a cost $23,000,000 less than the original estimate. It is gratifying for the officials and executives of the District to know that the aqueduct actually has been built at such a tremendous saving as compared with the original estimates. It is even more comforting for these officials to know that the big job has been finished at this particular time. Taking into account the constantly increasing construction costs of the present period, it is conservatively estimated that were the aqueduct job to be launched at this time it would cost approximately $75,000,000 more than has been its actual cost.

It is important to bear in mind that the Metropolitan Water District is a wholesaler of water to its member cities. The aqueduct delivers water to points where it is taken into the local municipally-owned water distribution systems of the various cities. Water is metered at these points and the cities charged accordingly. From the moment the water enters the municipal mains it is the property and is under the control of the several cities. Thus, it is distributed to the individual consumers by the several municipalities, and not by the District.

Morris Dam

Morris Dam and reservoir, which since its construction a number of years ago has been operated as a part of the Pasadena water supply system, has been taken over by the Metropolitan Water District.

The District has purchased the dam and reservoir and has taken them over as parts of the aqueduct distribution system, in accordance with the terms of a contract approved by the Board of Directors at its meeting on June 27. The final purchase agreement was based upon a contract entered into between the District and Pasadena in 1932. Under this contract the District agreed to take over the dam and reservoir at the time it was ready to begin the delivery of aqueduct water to Pasadena. Such water delivery was started on June 17.